

Fam. Curculionidæ.

Genus PIAZOMIAS.

Schönherr, Gen. et Spec. Curc. v. 936 (1840).

Piazomias Welwitschii, n. sp.

P. niger, squamulis parvis demissis submetallico-albidis undique irroratus; rostro utrinque bicostato, in medio canaliculato; prothorace brevi, ad latera valde subampliato-rotundato, dense granulato, canaliculato; elytris pone basin constrictis, in medio rotundato-ampliatis, ad humeros obsolete calloso-tuberculatis, profunde punctato-striatis, per basin ipsissimam elevatis, ad apicem singulatum minute acuminatis; antennis ad basin pedibusque posterioribus piceis, pedibus anticis longissimis.

Long. corp. lin. $4-4\frac{3}{4}$.

Habitat "ad frutices varios et ad gramina altiora regionum littoralis et montanæ."—Doni. Welwitsch.

Genus SCIOBIUS.

Schönherr, Gen. et Spec. Curc. ii. 534 (1834).

Sciobius Paivanus, n. sp.

S. ovatus, nigro-fuscus sed squamulis parvis demissis albidis parce nebulosus; rostro utrinque carinato; prothorace brevi, subconico; elytris profunde punctato-striatis setisque erectis rigidis obsitis, obscure albido-tessellatis; antennis, tibiis tarsisque fusco-ferrugineis.

Long. corp. lin. $2\frac{2}{3}$.

Habitat "ad varias leguminosas spinosas regionis littoralis."—Doni. Welwitsch.

I am informed by M. Jekel, who is so well known for his accurate and extensive knowledge of the Curculionidæ, that both of these insects are unquestionably new; and I have therefore much pleasure in naming them as above.

VI.—*A Catalogue of the Zoophytes of South Devon and South Cornwall.* By the Rev. THOMAS HINCKS, B.A.

[Continued from vol. viii. p. 366.]

[Plate VII.]

MOLLUSCOIDA.

Class POLYZOA, J. V. Thompson.

Order INFUNDIBULATA, Gervais.

Suborder Cheilostomata, Busk. Fam. Salicornariadæ.

SALICORNARIA, Cuvier.

1. *S. farciminoïdes*, Ellis & Solander.

Common, in shallow and deep water: on rocks near the

Scallop-bank, Salcombe Bay; near the Oar-stone, Torbay, in about 8 fathoms; amongst the trawl-refuse, abundant, &c.

Large masses of this beautiful species were obtained in Salcombe Bay, intermingled with a brilliant scarlet Sponge, which were torn by the dredge from the rocks, in about 15 or 20 fathoms' depth*.

2. *S. sinuosa*, Hassall.

Common, in deep water: as abundant as the previous species amongst the trawl-stuff.

Fam. Cellulariadae.

1. CELLULARIA, Pallas.

C. cuspidata, Busk.

A single specimen has been obtained by Mrs. Gulson amongst the refuse of one of the Brixham trawlers. It is a common Australian species.

[Vide 'Annals' for Feb. 1855, "Notes on British Zoophytes."]

2. SCRUPOCELLARIA, Van Beneden.

1. *S. scrupea*, Busk.

Not uncommon: off Berry Head; Salcombe Bay. It grows in close compact tufts.

[On stones, off St. Ives, Cornwall.]

2. *S. scruposa*, Linnæus.

Very common.

3. CANDA, Lamouroux.

C. reptans, Pallas.

Extremely abundant, chiefly on weed: plentiful in the Laminarian zone, where it spreads luxuriantly over *Halidrys siliquosa* and other Algæ; also amongst the trawl-stuff.

Fam. Scrupariadae.

1. SCRUPARIA, Oken.

S. chelata, Linnæus.

Very common on weed, shells, &c.: tide-pools; Salcombe Bay, on *Laminaria digitata* (a favourite habitat), &c. It sometimes overspreads the fronds of the last-named weed with dense miniature forests.

* A small branch of this species was found by M. Milne-Edwards attached to a portion of the telegraphic cable which formerly connected Sardinia and Algeria. The piece on which the Polyzoon was growing had been taken up from a submarine valley, lying between Bône and Cagliari, which is from 1000 to 1500 fathoms in depth.

This species, when growing on shells, is not uncommonly recumbent and adnate, and creeps over the surface like a *Hippothoa*. It is a curious fact that in this condition it assumes the mode of growth of the latter genus, and sends off branches from the sides of the cells. The aperture, too, is not distinctly margined, as in the erect form.

I have many specimens of this variety, which were dredged off the Isle of Man, where it is common on oyster and other shells. They form *Hippothoa*-like patches, and generally show the process, springing from the front of the cells (below the aperture), which marks the commencement of a branch or of an ovicelligerous cell. So completely are the habit and aspect of the Polyzoon changed in this repent variety, that it is difficult to recognize it under its disguise. When I first met with it, I had no doubt that I had obtained a new species of *Hippothoa*; but I have since found a specimen in which an erect shoot of the normal character springs from the line of creeping cells.

I have *Scruparia chelata* in the same condition from Australia, where the species is common.

2. HIPPOTHOA, Lamouroux.

1. *H. catenularia*, Jameson.

Very common in deep water: spreads profusely over the Cornish *Pinnae* from 60 fathoms.

2. *H. divaricata*, Lamx.

Very common: from between tide-marks (rarely) to deep water. Some of the most beautiful specimens which I have seen were spread over the smooth inner surface of the *Pinna ingens*.

The variety *Patagonica* occurs on red weed at Sidmouth.

[Hobson's Bay, Australia.]

3. ÆTEA, Lamouroux.

1. *Æ. anguina*, Linnæus.

Extremely common: on Algæ (especially the red), Corallines, &c., in tide-pools, and the Laminarian zone.

2. *Æ. truncata*, Landsborough.

On shells, apparently not common: Plymouth, &c.

In his description of this species, Dr. Landsborough makes no mention of the curious spur-like processes with which the cells are often furnished. They spring from the back of the cell below the aperture, and are generally of considerable length.

[Ramsay, Isle of Man; common.]

3. *Æ. recta*, n. sp. Pl. VII. fig. 3.

Cells long, nearly straight, truncate at the extremity; surface coarsely ringed below, the upper portion punctulate; aperture elongate, not dilated.

Abundant on shells and other submarine bodies: Torbay; Salcombe; from 60 fathoms off the Deadman, &c.

In this species the creeping base is composed of a series of fusiform expansions, connected by a delicate thread of variable length, and closely resembling the cells of a *Hippothoa*. They are regularly formed, enlarged and rounded at one end, and pointed at the other. The cells are placed at the extremity of the larger end; they are straight or a little curved, long, truncate, *very slightly* enlarged above; surface ringed below—more coarsely than in *Æ. anguina*,—covered with minute punctulations above; aperture elongate, occupying a large proportion of the length of the cell.

Æ. anguina may be at once distinguished from the present species by its bent and spatulate cell. It is also of inferior size.

There can be little doubt that Mr. Couch's *Hippothoa sica* (Corn. Faun. iii. 102, pl. 19. fig. 8) was founded on specimens of this species in which the cells were broken off or only partially developed. His description applies exactly to *Ætea recta* in this state. Indeed, when stripped of its cells, or with only a small portion left, forming a tubular aperture at the extremity of the clavate expansions, it is undistinguishable from a *Hippothoa**. The mode of branching is the same as in the latter genus, the branches being given off from the sides of the cells. *Ætea recta* is abundant on the coast where Mr. Couch's investigations were carried on.

[Isle of Man, dredged on shells; Lamlash, Arran.]

4. BEANIA, Johnston.

B. mirabilis, Johnst.

Common: creeping amongst *Bugula turbinata*, rock-pools, Exmouth; on *Laminaria*-roots, Salcombe Bay; on stones between tide-marks, Torquay, &c.

[Ramsay, Isle of Man, on weed; off the coast of Antrim, on shell; Lamlash.]

* The upper portion of the cells of *Æ. recta* is very commonly broken off a little below the base of the aperture.

Fam. Gemellariadæ.

1. GEMELLARIA, Savigny.

G. loricata, Linn.

Not common.

This species, which is so abundant in some districts (as, for instance, on the Lancashire coast), is of comparatively rare occurrence in Devon.

“Near the shore, rare; Polperro” (*Couch*).

2. NOTAMIA, Fleming.

N. bursaria, Linn.

Dr. Johnston states that he received specimens of this interesting polyzoon from Devonshire, through Mrs. Griffiths: they were parasitical on *Plumularia falcata*. I have never met with it either there or in Cornwall.

Fam. Cabereadæ.

CABEREA, Lamouroux.

1. *C. Boryi*, Audouin.

Amongst trawl-refuse taken up off Budleigh-Salterton. In 1854, I found several small tufts growing amidst a mass of *Scrupocellaria scruposa*. Miss Cutler had previously obtained very fine specimens from the same locality on *Eschara foliacea*.

[2. *C. Hookeri*, Fleming.

Fleming founds his description of this species on a specimen which he had received from Dr. Hooker, and which was said to have been obtained at Torquay.

This is, I believe, the only record of the occurrence of *C. Hookeri* out of the north; and one can hardly help suspecting that there has been some mistake about it. Prof. E. Forbes found it in Shetland, and Mr. Barlee in the Orkneys. It has not occurred either to Mr. Couch or myself in the west. At present, its claim to a place in this Catalogue must be considered very doubtful.]

Fam. Bicellariadæ.

1. BICELLARIA, De Blainville.

B. ciliata, Linn.

Very common: on Sertularian Zoophytes, &c.

2. *BUGULA*, Oken.

1. *B. flabellata*, J. V. Thompson.

Common: frequently on *Eschara foliacea*; on *Gorgonia* from 30 or 40 fathoms; in shells from Salcombe Bay, &c.

2. *B. avicularia*, Pallas.

Not common: Plymouth.

3. *B. turbinata*, Alder.

Very abundant on rocks near low-water mark.

[Llandudno, N. Wales; Isle of Man.]

4. *B. plumosa*, Pallas.

Not common: on scallop and other shells, &c., in Salcombe Bay; "Polperro, rare" (*Couch*).

Fam. *Flustridæ*.

FLUSTRA, Linnæus.

1. *F. foliacea*, Linn.

Comparatively rare in Devon.

On the Cornish coast, between Rame Head and the Deadman, it is common, according to Mr. Couch.

2. *F. papyracea*, Ellis.

Not uncommon: dredged in Salcombe Bay, &c.

Fam. *Membraniporidæ*.

MEMBRANIPORA, De Blainville.

1. *M. membranacea*, Linn.

Very abundant, overspreading with its beautiful lacework the fronds of *Laminaria* and other sea-weeds.

2. *M. pilosa*, Pallas.

Universally distributed between tide-marks, encrusting various kinds of sea-weed, &c.; also on shells, &c., from deep water.

A pretty, stellate variety, of very delicate texture, occurs in deserted shells of *Pectunculus glycimeris* from Plymouth.

3. *M. Rosselii*, Audouin.

On shells from Torbay, sometimes forming very large patches. [Off Maughold Head, Isle of Man.]

4. *M. Flemingii*, Busk.

Very common, on shells, stones, &c.: from 60 fathoms, off

the Deadman; from 40 fathoms, ten or twelve miles south of Polperro, &c.

The specimens from these deep-water habitats exhibit very fully the distinctive characters of the species.

5. *M. Pouilletii*, Audouin.

Abundant; frequently overspreading the interior of deserted shells, &c.

6. *M. imbellis*, Hincks.

Occasionally from deep water: off the Deadman, from 60 fathoms; on shell from the Brixham trawl-boats.

Weighty as Mr. Busk's judgment on such a point undoubtedly is, I find myself unable to agree with him in regarding *M. imbellis* as "an unarmed variety of *M. Flemingii*." Its cells are much larger than those of the latter species, and more widely separated; and the numerous specimens which I have examined from very various localities have been uniformly destitute of the calcareous expansion, as well as of the spines and avicularia, which distinguish *M. Flemingii*.

7. *M. Lacroixii*, Savigny.

Encrusting stones and shells between tide-marks, not uncommon; also dredged in moderate depths.

In sheltered situations, the cells are completely set round with delicate spines, which bend inwards. Johnston's plate 57. fig. 11 represents this condition.

8. *M. hexagona*, Busk, 'Microscopical Journal' for 1856, page 308. pl. 12. fig. 4.

"Coast of Devon (*Miss Cutler*); Fowey Harbour (*Peach*)."

9. *M. monostachys*, Busk.

Spreading over the surface of a stone, between tide-marks, Torquay.

The Torquay specimen, which I refer to this species, differs in some respects from Mr. Busk's description. The cells are arranged in linear series, of varying width, and are prolonged and attenuated downwards; the aperture is oval, and the margin armed with numerous spines; about seven or eight are ranged on each side, the uppermost pair being larger than the rest and standing erect; below the aperture, there is a prominent acuminate spine, slightly curved. In the *M. monostachys* as described by Busk, the latter only is present,—the margin being otherwise unarmed. The shape of the cell is the same in the two forms; and the presence or absence of the delicate marginal

spines is probably dependent, as in the case of *M. Lacroixii*, on situation.

[Ilfracombe, on the Capstone Rocks. The specimens from this locality are destitute of the spines.]

10. *M. lineata*, Linn., Alder, Northumberland Catal. p. 53,
pl. 8. fig. 1.

Abundant between tide-marks.

11. *M. spinifera*, Johnston.

On stone, between tide-marks, Salcombe; Goran (*Peach*).
[Ramsay, Isle of Man, between tide-marks.]

12. *M. curvirostris*, n. sp. Pl. VII. fig. 4.

Cells oval, regularly disposed; aperture with a membranous covering; margin raised, slightly thickened, subgranular, with a short stout spine on each side near the top; ovicells globular, prominent, strongly frosted and silvery; avicularia scattered, very large, raised, sloping upwards, with a pointed and curved mandible.

On stone from 40 fathoms, ten or twelve miles south of Polperro.

The most characteristic points in this species, which forms a neat and delicate network on the stone, are the regularly oval cells and the large and raised curvirostrate avicularia, which occur here and there, and are situated at one side of the cell near the top. The two spines project immediately below the ovicell.

[*M. craticula*, Alder.

Mr. Alder regards the *Flustra lineata* of Couch's 'Cornish Fauna' as probably identical with this species; and, judging merely from the description and figure, I should have formed the same opinion. Mr. Peach, however, has kindly sent me a specimen of *Membranipora* from Goran, which he believes to be the *F. lineata* of Couch; and this turns out to be the *M. spinifera*, exhibiting many of the characteristic club-shaped spines which bear the avicularia. As Mr. Peach is specially mentioned in the 'Cornish Fauna' as having supplied specimens of *F. lineata* from Goran, on which, amongst others, Mr. Couch founded his description, I now hesitate to identify this species with *M. craticula*. It is not improbable that both forms may have come under his notice, but for the present this point must remain doubtful.

Off Ramsay, Isle of Man, this species is abundant on shells dredged from the Scallop-banks.]

EXPLANATION OF PLATE VII.

- Fig. 1. *Coryne vaginata*, Hincks (Ann. ser. 3. vol. viii. p. 295), from a tracing of Lister's figure of *Coryne* in the Phil. Transact.: 1 a, the cup-like expansion of the polypary.
 Fig. 2. Gonophore of *Eudendrium insigne*, Hincks.
 Fig. 3. *Ætea recta*, Hincks.
 Fig. 4. *Membranipora curvirostris*, Hincks.

VII.—Further Observations on some Novel Phases of Organic Life at great depths in the Sea. By Dr. G. C. WALLICH.

To the Editors of the *Annals and Magazine of Natural History*.

GENTLEMEN,

In the course of some experiments conducted by me, with a view to ascertain the relation subsisting between the sarcode contents and the calcareous shells of the Foraminifera, a fact so curious revealed itself, as to suggest the possibility of its being rendered available for the solution of various questions in microscopic analysis.

A deep-sea deposit containing numerous Foraminiferous shells, principally *Globigerina*, was subjected to the action of fluoric acid, both at the ordinary temperature and at the boiling-point. When subjected to boiling for a period of about a couple of minutes, entire solution of the calcareous, silicious, and vitreous (volcanic) particles took place, and the masses of sarcode were disintegrated and broken up into extremely minute somewhat acicular granules. These granules, however, in all probability, do not consist of pure sarcode, but of that substance or its elements in combination with fluoric and silicic acids. Seen under the microscope, they did not serve to throw any new light on the characters of sarcode, either with or without the employment of the polariscope.

The portion of deposit submitted only to a momentary immersion in cold fluoric acid gave off a copious discharge of carbonic acid; but on being carefully washed and examined under the microscope, little or no effect seemed to have been produced on the majority of the *Globigerina*-shells, beyond a reduction in the thickness of the walls in some, and in others what appeared to be an alteration in the outline of the superficial elevations, which, in the case of the older shells, are conical and present a zeolite-like aspect when fractured.

The silicious organisms and vitreous particles were very partially affected, the micaceous scales remaining quite intact.